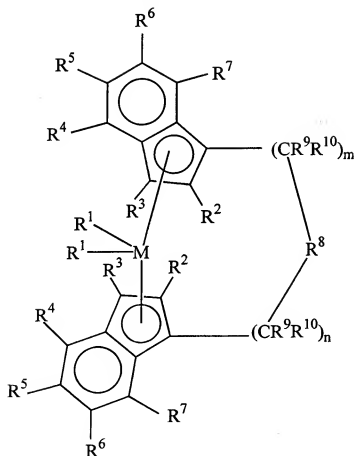


Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- (Currently Amended) A process to produce A-propylene copolymer, said process comprising: produced by the process comprising:
 polymerizing propylene and ethylene in the presence of the product of an activator and a metallocene compound represented by the formula:



wherein: M is hafnium

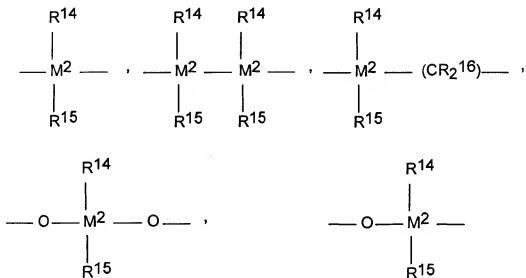
R¹ are identical or different, and are one of a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a C₆-C₁₀ aryl group, a C₆-C₁₀ aryloxy group, a C₂-C₁₀ alkenyl group, a C₇-C₄₀

arylalkyl group, a C₇-C₄₀ alkylaryl group, a C₈-C₄₀ arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R² is a hydrogen atom;

R³ is a hydrogen atom;

R⁸ is



wherein: R¹⁴, R¹⁵ and R¹⁶ are identical or different, and are a hydrogen, a halogen, a C₁-C₂₀ branched or linear alkyl group, a C₁-C₂₀ fluoroalkyl, a silylalkyl group, a C₆-C₃₀ aryl group, a C₆-C₃₀ fluoroaryl group, a C₁-C₂₀ alkoxy group, a C₂-C₂₀ alkenyl group, a C₇-C₄₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a C₇-C₄₀ alkylaryl group, or R¹⁴ and R¹⁵, together with the atoms binding them, form a cyclic ring;

M² is carbon;

R⁹ and R¹⁰ are identical or different, and have the meanings stated for R¹;

R⁴, R⁵, R⁶ and R⁷ are identical or different, and have the meanings stated for R¹ provided that at least one of R⁴ and R⁷ are not hydrogen; and
 m and n are identical or different, and are zero, 1 or 2;

wherein the propylene copolymer comprises:

- a) at least 50 wt% units derived from propylene;
- b) from 10 wt% to 20 wt% ethylene derived units, based on the total weight of the copolymer; and
- c) a ratio of g' as determined by the formula:

$$(g'_{88-98})/(g'_{20-60}) \geq 1.20$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, and

- d) a weight average molecular weight of 20,000 to 1,000,000 g/mol.

2.-3. (Cancelled)

4. (Previously Presented) The copolymer of claim 1 wherein R^{14} , R^{15} and R^{16} , when present, are hydrogen or a C_1 - C_4 alkyl group.

5. (Previously Presented) The copolymer of claim 1 wherein m is 1 and n is 1.

6.-7. (Cancelled)

8. (Previously Presented) The copolymer of claim 1 wherein the polymer contains at least 75 weight percent propylene derived units, based on the total weight of the copolymer.

9. (Previously Presented) The copolymer of claim 1 wherein the metallocene compound is a single species.

10. (Previously Presented) The copolymer of claim 1 wherein the process is a single step polymerization process conducted in a single reactor.

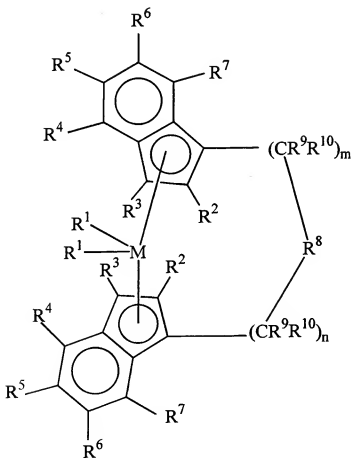
11.-23. (Cancelled)

24. (Previously Presented) The propylene copolymer of claim 1 wherein the ratio of g^+ is equal to or greater than 1.30.

25.-29. (Cancelled)

30. (Currently Amended) A process for preparing a propylene copolymer composition comprising:

polymerizing propylene and a comonomer of ethylene in the presence of the product of activator and metallocene compound represented by the formula:



wherein: M is a metal of Group 4, 5, or 6 of the Periodic Table,

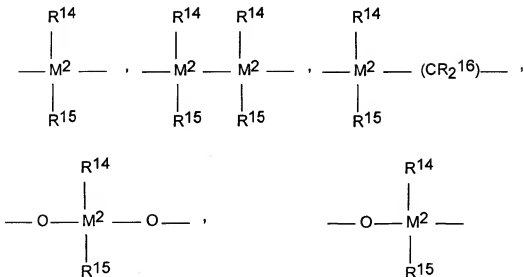
R^1 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, a C_2 - C_{10} alkenyl group, a C_7 - C_{10}

arylalkyl group, a C₇-C₄₀ alkylaryl group, a C₈-C₄₀ arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R² are identical or different, and are a hydrogen atom, a halogen atom, a C₁-C₁₀ alkyl group, a halogenated C₁-C₁₀ alkyl group, a C₆-C₁₀ aryl group, a halogenated C₆-C₁₀ aryl group, a C₂-C₁₀ alkenyl group, a C₇-C₁₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a -NR¹⁷ radical, a -SR¹⁷ radical, a -OR¹⁷ radical, a -OSiR₃¹⁷ radical, or a -PR₂¹⁷ radical, wherein: R¹⁷ is one of a halogen atom, a C₁-C₁₀ alkyl group, or a C₆-C₁₀ aryl group;

R³ are as defined for R¹;

R⁸ is



wherein: R¹⁴, R¹⁵ and R¹⁶ are identical and are a C₁-C₄ alkyl group;

M² is carbon;

R⁹ and R¹⁰ are identical or different, and have the meanings stated for R¹;

R⁴, R⁵, R⁶ and R⁷ are identical or different, and have the meanings stated for R¹ provided that at least one of R⁴ and R⁷ are not hydrogen; and

m and n are identical or different, and are zero, 1 or 2;

wherein the propylene copolymer comprises:

- a) at least 50 wt% units derived from propylene;
- b) a ratio of g's as determined by the formula:

$$\frac{g'_{88-98}}{g'_{20-60}} \geq 1.10$$

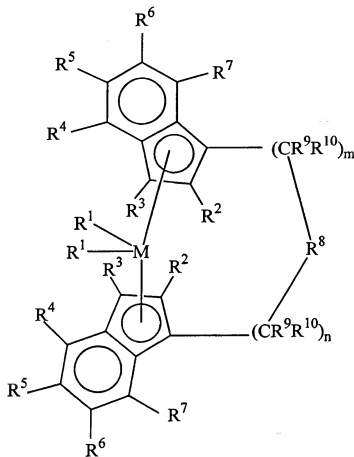
where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, and wherein the propylene copolymer has a weight average molecular weight of 20,000 to 1,000,000 g/mol and has from 5 wt% to about 28 wt% comonomer.

31. (Previously Presented) The copolymer of Claim 1, wherein the metallocene compound is selected from the group consisting of:

rac-1,2-ethylenebis(4,7-dimethyl-indenyl)hafnium dichloride;
rac-1,2-ethylenebis(4,7-diethyl-indenyl)hafnium dichloride;
rac-1,2-ethylenebis(4,7-diisopropyl-indenyl)hafnium dichloride;
rac-1,2-ethylenebis(4,7-di-t-butyl-indenyl)hafnium dichloride;
rac-1,2-ethylenebis(4-methyl-7-phenyl-indenyl)hafnium dichloride;
rac-1,2-ethylenebis(4-phenyl-7-methyl-indenyl)hafnium dichloride;
and
dialkyl analogs thereof.

32. (Previously Presented) A process for preparing a propylene copolymer, the process comprising:

polymerizing propylene and a comonomer selected from C₂ and C₄-C₁₀ in the presence of the product of an activator and a metallocene compound represented by the formula:



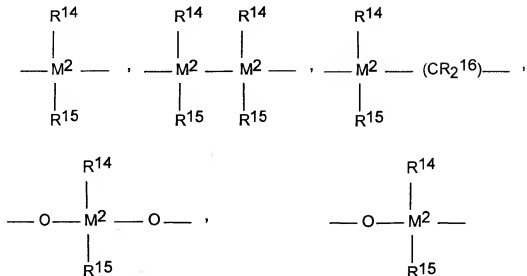
wherein: M is hafnium

R¹ are identical or different, and are one of a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a C₆-C₁₀ aryl group, a C₆-C₁₀ aryloxy group, a C₂-C₁₀ alkenyl group, a C₇-C₄₀ arylalkyl group, a C₇-C₄₀ alkylaryl group, a C₈-C₄₀ arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R² are hydrogen;

R³ are as defined for R¹;

R⁸ is



wherein: R^{14} , R^{15} and R^{16} are identical or different, and are a hydrogen, a halogen, a $\text{C}_1\text{-C}_{20}$ branched or linear alkyl group, a $\text{C}_1\text{-C}_{20}$ fluoroalkyl, a silylalkyl group, a $\text{C}_6\text{-C}_{30}$ aryl group, a $\text{C}_6\text{-C}_{30}$ fluoroaryl group, a $\text{C}_1\text{-C}_{20}$ alkoxy group, a $\text{C}_2\text{-C}_{20}$ alkenyl group, a $\text{C}_7\text{-C}_{40}$ arylalkyl group, a $\text{C}_8\text{-C}_{40}$ arylalkenyl group, a $\text{C}_7\text{-C}_{40}$ alkylaryl group, or R^{14} and R^{15} , together with the atoms binding them, form a cyclic ring;

M^2 is carbon;

R^9 and R^{10} are identical or different, and have the meanings stated for R^1 ;

R^4 , R^5 , R^6 and R^7 are identical or different, and have the meanings stated for R^1 provided that at least one of R^4 and R^7 are not hydrogen; and

m is 1 or 2 and n is 1 or 2;

wherein the propylene copolymer comprises:

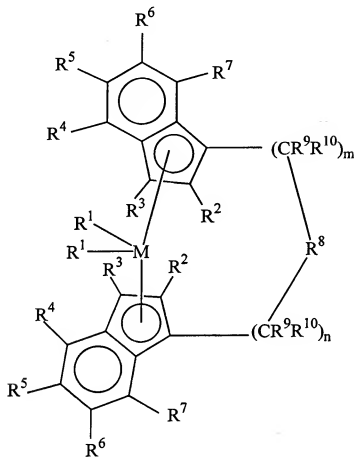
- a) at least 50 wt% units derived from propylene;
- b) from 5 wt% to about 28 wt% of the comonomer; and
- c) a ratio of g' as determined by the formula:

$$\frac{g_{88-98}}{g_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g^* is the weight average g^* over the elution range designated 88-98 and 20-60, respectively, and wherein the propylene copolymer has a weight average molecular weight of 20,000 to 1,000,000 g/mol.

33. (Previously Presented) The process of claim 32 wherein R^3 are hydrogen.
34. (Previously Presented) The process of claim 32 wherein R^{14} , R^{15} and R^{16} , when present, are hydrogen or a C_1 - C_4 alkyl group.
35. (Previously Presented) The process of claim 32 wherein m is 1 and n is 1.
36. (Previously Presented) The process of claim 32 wherein R^5 and R^6 are hydrogen, R^9 and R^{10} , when present, are hydrogen, and R^4 and R^7 are identical, and are one of a fluorine, a chlorine, a bromine, a C_1 - C_4 alkyl group, or a C_6 - C_{10} aryl group.
37. (Previously Presented) The process of claim 32 wherein the polymer contains at least 75 weight percent propylene derived units, based on the total weight of the copolymer.
38. (Previously Presented) The process of claim 32 wherein the metallocene compound is a single species.
39. (Previously Presented) The process of claim 32 wherein the process is a single step polymerization process conducted in a single reactor.
40. (Previously Presented) A process for preparing a propylene copolymer, the process comprising:

polymerizing propylene and a comonomer selected from C_2 and C_4 - C_{10} in the presence of the product of an activator and a metallocene compound represented by the formula:



wherein: M is hafnium

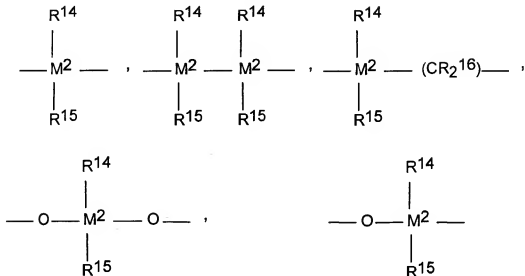
R^1 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, a C_2 - C_{10} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_8 - C_{40} arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R^2 are identical or different, and are a hydrogen atom, a halogen atom, a C_1 - C_{10} alkyl group, a halogenated C_1 - C_{10} alkyl group, a C_6 - C_{10} aryl group, a halogenated C_6 - C_{10} aryl group, a C_2 - C_{10} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_8 - C_{40} arylalkenyl group, a $-NR_2^{17}$ radical, a -

SR¹⁷ radical, a -OR¹⁷ radical, a -OSiR₃¹⁷ radical, or a -PR₂¹⁷ radical, wherein: R¹⁷ is one of a halogen atom, a C₁-C₁₀ alkyl group, or a C₆-C₁₀ aryl group;

R³ are as defined for R¹;

R⁸ is



wherein: R¹⁴, R¹⁵ and R¹⁶ are identical or different, and are a hydrogen, a halogen, a C₁-C₂₀ branched or linear alkyl group, a C₁-C₂₀ fluoroalkyl, a silylalkyl group, a C₆-C₃₀ aryl group, a C₆-C₃₀ fluoroaryl group, a C₁-C₂₀ alkoxy group, a C₂-C₂₀ alkenyl group, a C₇-C₄₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a C₇-C₄₀ alkylaryl group, or R¹⁴ and R¹⁵, together with the atoms binding them, form a cyclic ring;

M² is carbon;

m is 1 or 2;

n is 1 or 2; and

R⁵ and R⁶ are hydrogen,

R⁹ and R¹⁰, when present, are hydrogen, and

R⁴ and R⁷ are identical, and are one of a fluorine, a chlorine, a bromine, a C₁-C₄ alkyl group, or a C₆-C₁₀ aryl group;

wherein the propylene copolymer comprises:

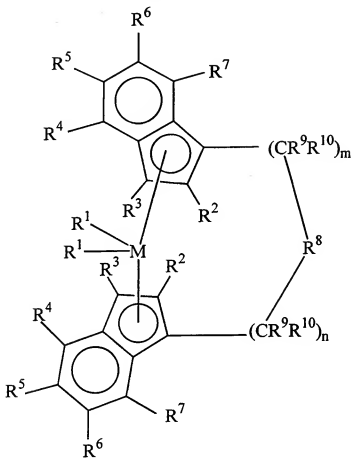
- a) at least 50 wt% units derived from propylene;
- b) from 5 wt% to about 28 wt% of the comonomer; and
- c) a ratio of g' as determined by the formula:

$$\frac{g'_{88-98}}{g'_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, and wherein the propylene copolymer has a weight average molecular weight of 20,000 to 1,000,000 g/mol.

- 41. (Previously Presented) The process of claim 40 wherein R^2 are hydrogen.
- 42. (Previously Presented) The process of claim 40 wherein R^2 and R^3 are hydrogen.
- 43. (Previously Presented) The process of claim 40 wherein R^{14} , R^{15} and R^{16} , when present, are hydrogen or a C_1 - C_4 alkyl group.
- 44. (Previously Presented) The process of claim 40 wherein m is 1 and n is 1.
- 45. (Previously Presented) The process of claim 40 wherein the polymer contains at least 75 weight percent propylene derived units, based on the total weight of the copolymer.
- 46. (Previously Presented) The process of claim 40 wherein the metallocene compound is a single species.
- 47. (Previously Presented) The process of claim 40 wherein the process is a single step polymerization process conducted in a single reactor.
- 48. (Previously Presented) A process for preparing a propylene copolymer composition comprising:

polymerizing propylene and a comonomer of ethylene in the presence of the product of an activator and a metallocene compound represented by the formula:



wherein: M is hafnium;

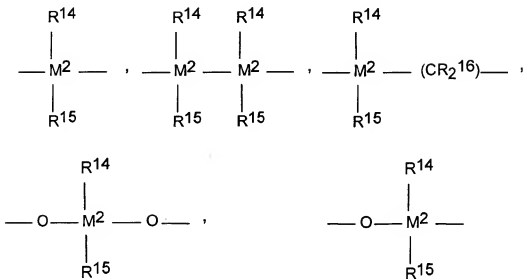
R¹ are identical or different, and are one of a hydrogen atom, a C₁-C₁₀ alkyl group, a C₁-C₁₀ alkoxy group, a C₆-C₁₀ aryl group, a C₆-C₁₀ aryloxy group, a C₂-C₁₀ alkenyl group, a C₇-C₁₀ arylalkyl group, a C₇-C₄₀ alkylaryl group, a C₈-C₄₀ arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R² are identical or different, and are a hydrogen atom, a halogen atom, a C₁-C₁₀ alkyl group, a halogenated C₁-C₁₀ alkyl group, a C₆-C₁₀ aryl group, a halogenated C₆-C₁₀ aryl group, a

C₂-C₁₀ alkenyl group, a C₇-C₁₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a -NR₂¹⁷ radical, a -SR¹⁷ radical, a -OR¹⁷ radical, a -OSiR₃¹⁷ radical, or a -PR₂¹⁷ radical, wherein: R¹⁷ is one of a halogen atom, a C₁-C₁₀ alkyl group, or a C₆-C₁₀ aryl group;

R³ are as defined for R¹;

R⁸ is



wherein: R¹⁴, R¹⁵ and R¹⁶ are identical or different, and are a hydrogen, a halogen, a C₁-C₂₀ branched or linear alkyl group, a C₁-C₂₀ fluoroalkyl, a silylalkyl group, a C₆-C₃₀ aryl group, a C₆-C₃₀ fluoroaryl group, a C₁-C₂₀ alkoxy group, a C₂-C₂₀ alkenyl group, a C₇-C₄₀ arylalkyl group, a C₈-C₄₀ arylalkenyl group, a C₇-C₄₀ alkylaryl group, or R¹⁴ and R¹⁵, together with the atoms binding them, form a cyclic ring;

M² is carbon;

R⁵ and R⁶ are hydrogen;

R⁹ and R¹⁰, when present are hydrogen;

R⁴ and R⁷ are identical and are a fluorine, a chlorine a bromine, a C₁-C₄ alkyl group, or a C₆-C₁₀ aryl group;

m is 1 or 2; and

n is 1 or 2;

wherein the propylene copolymer comprises:

- a) at least 50 wt% units derived from propylene;
- b) from 5 wt% to about 28 wt% ethylene; and
- c) a ratio of g' as determined by the formula:

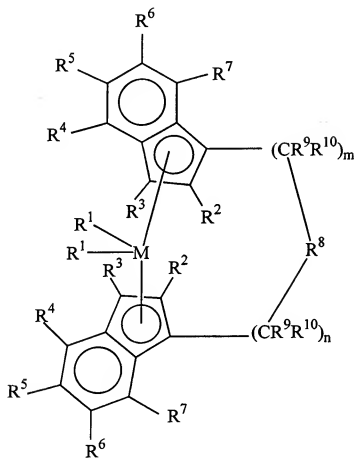
$$\frac{g'_{88-98}}{g'_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, and wherein the propylene copolymer has a weight average molecular weight of 20,000 to 1,000,000 g/mol.

- 49. (Previously Presented) The process of claim 48 wherein R² are identical or different C₁-C₄ alkyl groups.
- 50. (Previously Presented) The process of claim 48 wherein R² are identical C₁-C₄ alkyl groups, and wherein R³ are hydrogen.
- 51. (Previously Presented) The process of claim 48 wherein R¹⁴, R¹⁵ and R¹⁶, when present, are identical and are a C₁-C₄ alkyl group.
- 52. (Previously Presented) The process of claim 48 wherein m is 1 and n is 1.
- 53. (Previously Presented) The process of claim 48 wherein the composition contains at least 75 weight percent propylene derived units based on the total weight of the composition.
- 54. (Previously Presented) The process of claim 48 wherein the metallocene compound is a single species.
- 55. (Previously Presented) The process of claim 48 wherein the process is a single step polymerization process conducted in a single reactor.

56. (Previously Presented) A process for preparing a propylene copolymer, the process comprising:

polymerizing propylene and a comonomer selected from C_2 and C_4 - C_{10} in the presence of the product of an activator and a metallocene compound represented by the formula:



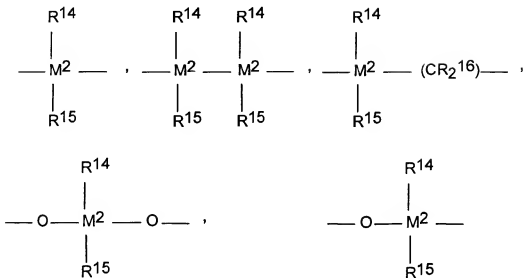
wherein: M is hafnium

R^1 are identical or different, and are one of a hydrogen atom, a C_1 - C_{10} alkyl group, a C_1 - C_{10} alkoxy group, a C_6 - C_{10} aryl group, a C_6 - C_{10} aryloxy group, a C_2 - C_{10} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_7 - C_{40} alkylaryl group, a C_8 - C_{40} arylalkenyl group, a halogen atom, or a conjugated diene, said conjugated diene substituted with one or more hydrocarbyl, tri(hydrocarbyl)silyl or tri(hydrocarbyl)silylhydrocarbyl groups, and said diene having up to 30 atoms not counting hydrogen;

R^2 is a hydrogen atom;

R^3 is a hydrogen atom;

R^8 is



wherein: R^{14} , R^{15} and R^{16} are identical or different, and are a hydrogen, a halogen, a C_1 - C_{20} branched or linear alkyl group, a C_1 - C_{20} fluoroalkyl, a silylalkyl group, a C_6 - C_{30} aryl group, a C_6 - C_{30} fluoroaryl group, a C_1 - C_{20} alkoxy group, a C_2 - C_{20} alkenyl group, a C_7 - C_{40} arylalkyl group, a C_8 - C_{40} arylalkenyl group, a C_7 - C_{40} alkylaryl group, or R^{14} and R^{15} , together with the atoms binding them, form a cyclic ring;

M^2 is carbon;

R^9 and R^{10} are identical or different, and have the meanings stated for R^1 ;

R^4 , R^5 , R^6 and R^7 are identical or different, and have the meanings stated for R^1 provided that at least one of R^4 and R^7 are not hydrogen;

m is 1 or 2;

n is 1 or 2; and

wherein the propylene copolymer comprises:

- a) at least 50 wt% units derived from propylene;
- b) from 5 wt% to about 28 wt% of the comonomer; and

c) a ratio of g' as determined by the formula:

$$(g'_{88-98})/(g'_{20-60}) \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively, and

d) a weight average molecular weight of 20,000 to 1,000,000 g/mol.

57. (Previously Presented) The process of claim 56 wherein R^{14} , R^{15} and R^{16} , when present, are hydrogen or a C_1 - C_4 alkyl group.
58. (Previously Presented) The process of claim 56 wherein m is 1 and n is 1.
59. (Previously Presented) The process of claim 56 wherein the polymer contains at least 75 weight percent propylene derived units, based on the total weight of the copolymer.
60. (Previously Presented) The process of claim 56 wherein the metallocene compound is a single species.
61. (Previously Presented) The process of claim 56 wherein the process is a single step polymerization process conducted in a single reactor.
62. (Previously Presented) The process of claim 56 wherein the ratio of g' is equal to or greater than 1.20.
63. (Previously Presented) The process of claim 56 wherein the ratio of g' is equal to or greater than 1.30.
- 64.-71. (Cancelled)